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GENERAL INTRODUCTION TO B&G NETWORK

The B&G Network range of instruments is designed to be used as individual units or connected together to form an integrated navigational system. A single network cable is used to carry data and power between units. The latest technology and screened cables throughout the Network System ensure the ultimate protection from interference between units and other systems. All Network instruments can be linked to Network PILOT, Network CHART, Network GPS or Network LORAN receivers or via NMEA 0183 (v1.5) to other navigational equipment.

INSTRUMENTS

Network SPEED
Network DEPTH
Network QUAD
Network WIND
Network TACK
Network DATA

AUTOPILOTS

Network PILOT

NAVIGATIONAL AIDS

Network GPS
Network LORAN
Network NAV
Network CHART

COMMUNICATIONS

Network VHF

INTRODUCTION TO NETWORK TACK

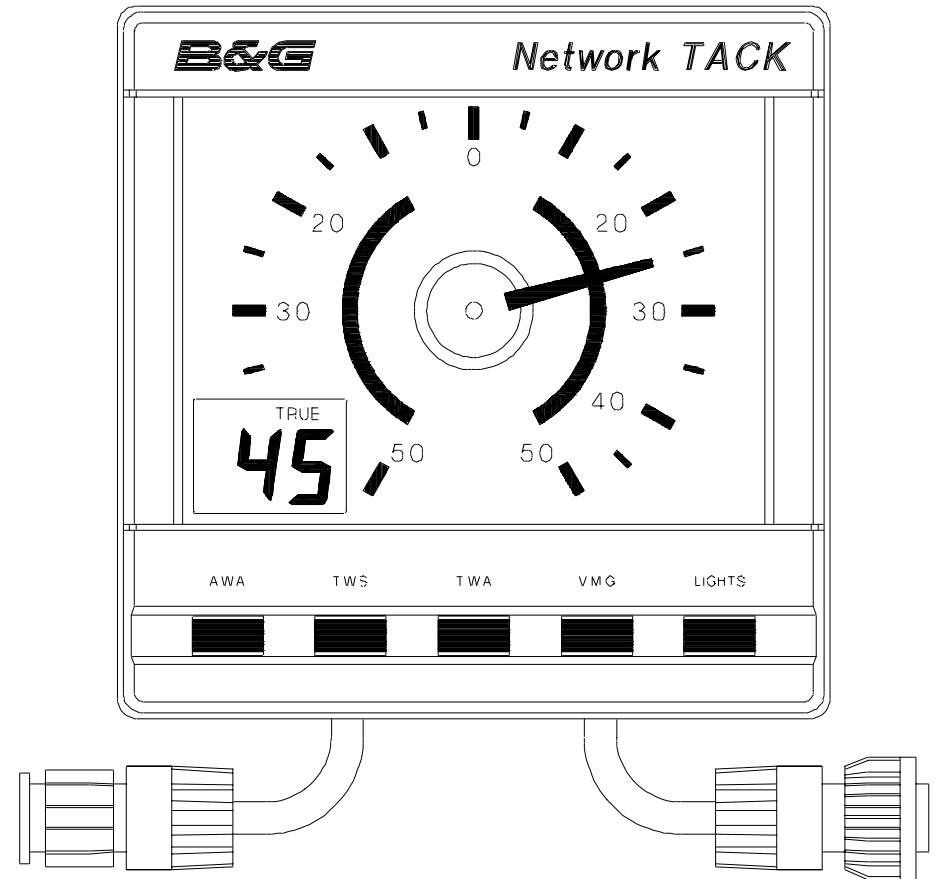
The Network TACK unit is an analogue Magnified Wind Angle repeater used for sailing on the wind or running, with a backlit Liquid Crystal Display (LCD) that can show other wind information selected by pressing one of the five keys. It has no sensor interfaces as all data is passed to the unit via the system network cables. Network TACK must be connected to a system that contains a Network WIND unit for wind data and a Network SPEED unit (for true wind and VMG functions) via the two network cable tails at the rear of the unit.

The unit is capable of transmitting NMEA 0183 v1.5 data via the network cables.

The five keys give the following selections:

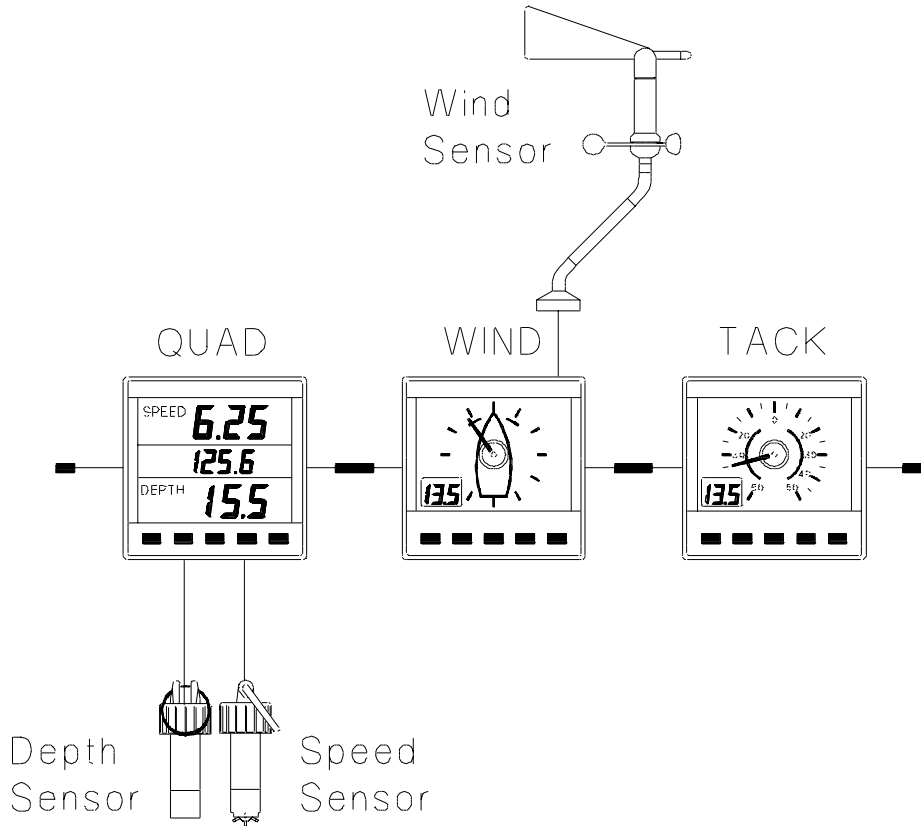
- **AWA** Apparent Wind Angle
- **TWS** True Wind Speed
- **TWA** True Wind Angle
- **VMG** Velocity Made Good
- **LIGHTS** Three levels of illumination and off.

NETWORK TACK DISPLAY UNIT



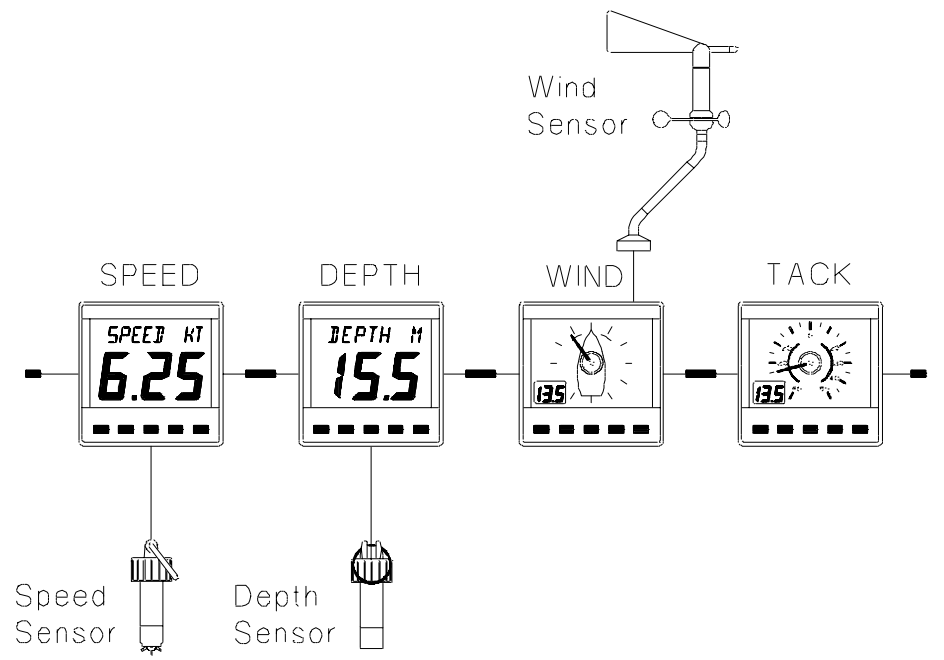
EXAMPLES SYSTEMS USING NETWORK TACK

Network QUAD, Network WIND and Network TACK units. Speed data being supplied from the Network QUAD unit for true wind and VMG functions.



Up to a maximum of four Network TACK units maybe used in an integrated Network Instrument System, where the total number of units does not exceed twenty.

Network SPEED, Network DEPTH, Network WIND and Network TACK. Speed data being supplied from Network SPEED unit for true wind and VMG functions.

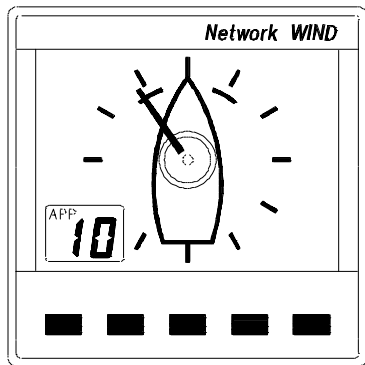


The Network units can be connected together in any order as data is shared via the system network cable link.

USING THE ANALOGUE DIAL AND POINTER

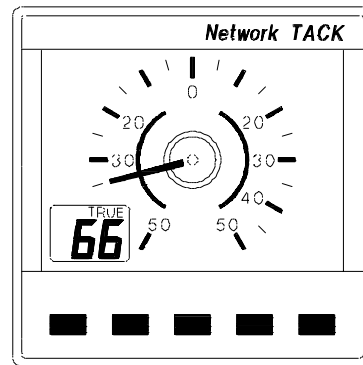
The analogue pointer indicates magnified apparent wind angles up to 50° port or starboard when close hauled or running.

EXAMPLE SAILING UPWIND



Network WIND shows an AWA of about 30° to Port, relative to the bow.

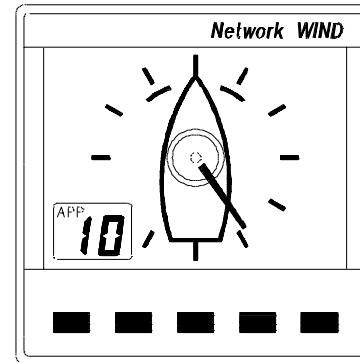
The LCD is showing an AWS of 10 knots.



Network TACK shows an AWA of 35° to Port, relative to bow.

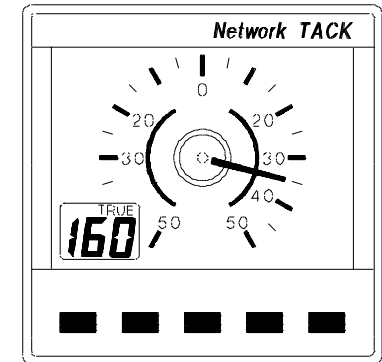
The LCD is showing a TWA of 66°.

EXAMPLE SAILING DOWNWIND



Network WIND shows an AWA of about 150° to Starboard, relative to the bow.

The LCD is showing an AWS of 10 knots.

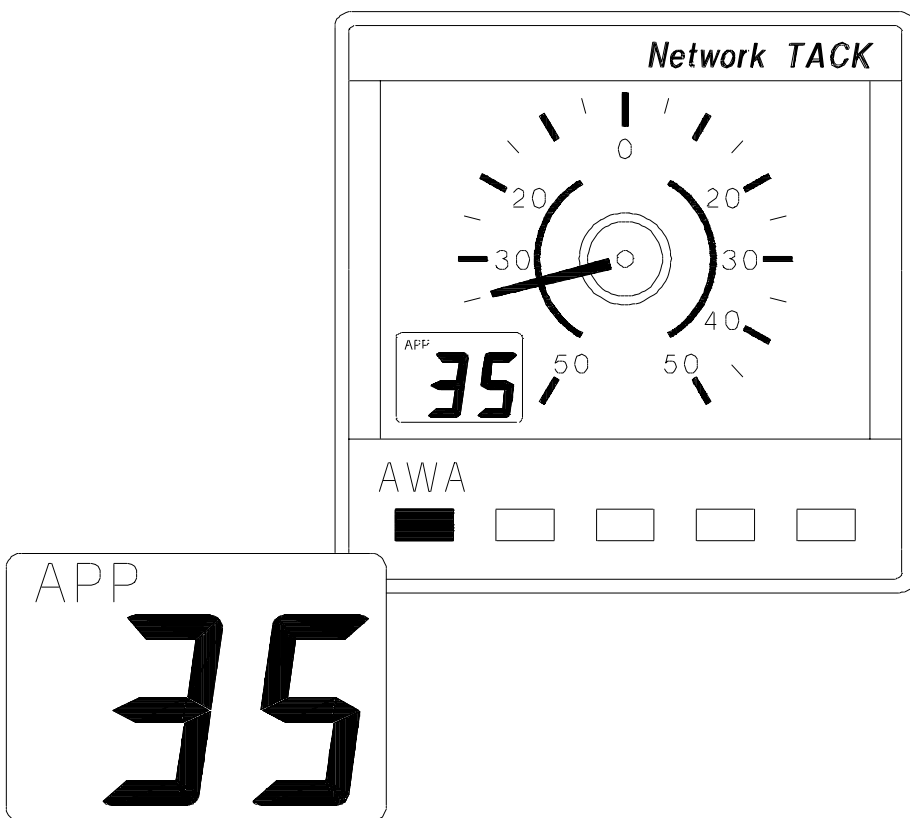


Network TACK shows an AWA of 35° to Starboard relative to the stern.

The LCD is showing a TWA of 160°.

USING THE AWA KEY

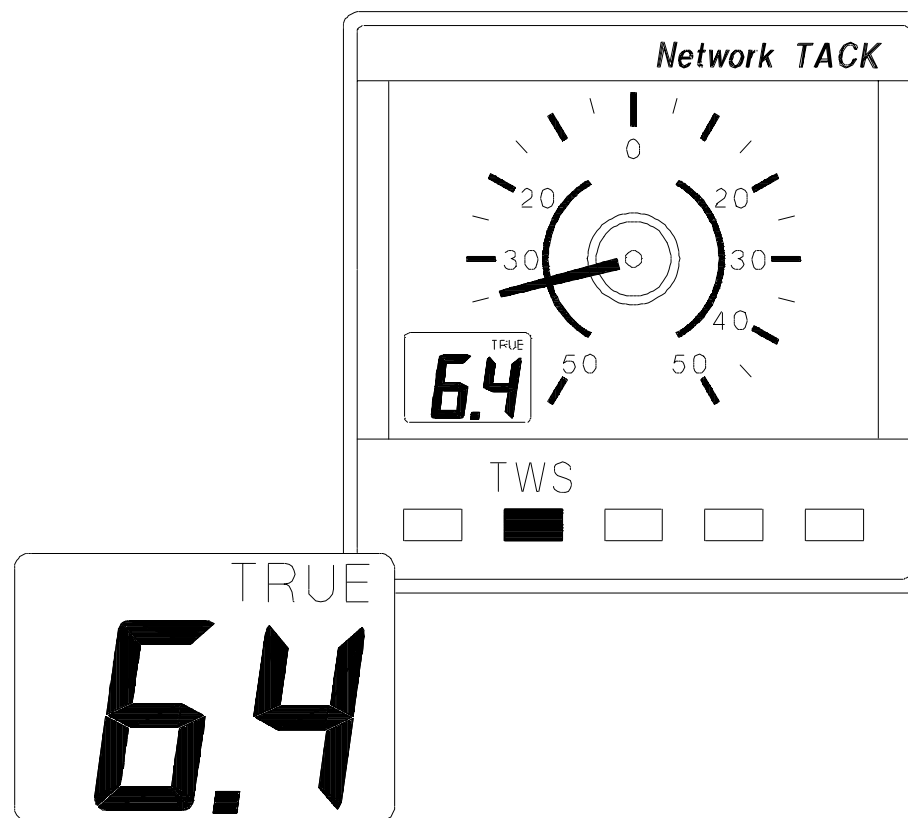
Press the **AWA** key to display Apparent Wind Angle on the LCD. The LCD **APP** legend will be displayed.



USING THE TWS KEY

Press the **TWS** key to display True Wind Speed on the LCD. The LCD **TRUE** legend will be displayed.

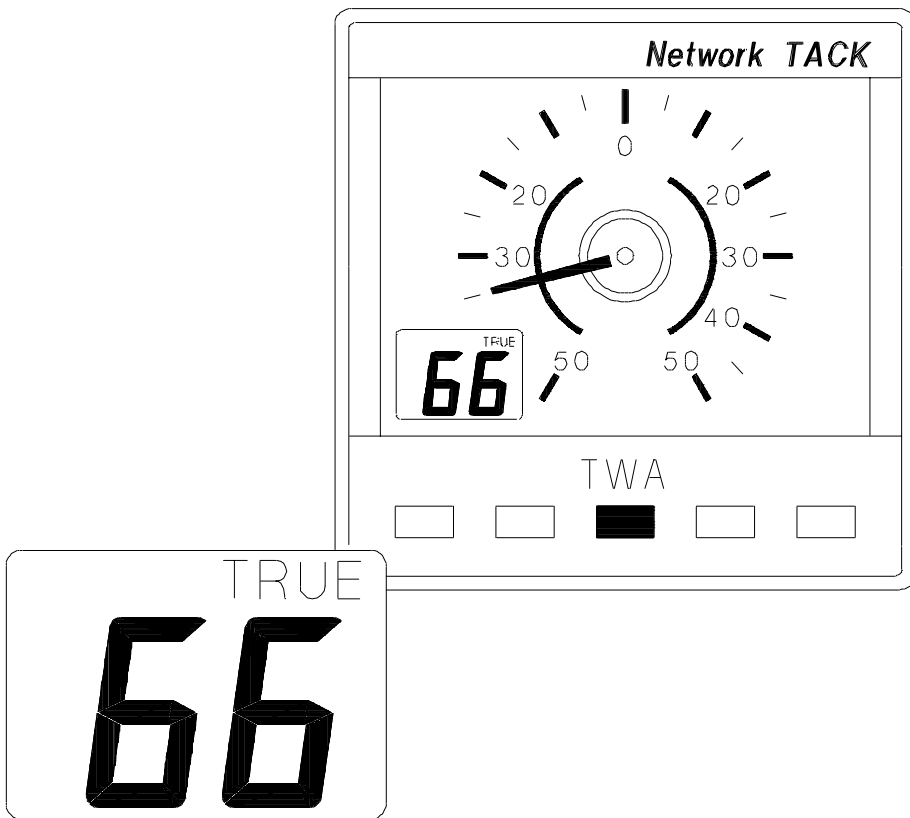
If boat speed data is not available the LCD digits will be blank and the **TRUE** legend will be displayed.



USING THE TWA KEY

Press the **TWA** key to display True Wind Angle on the LCD. The LCD **TRUE** legend will be displayed.

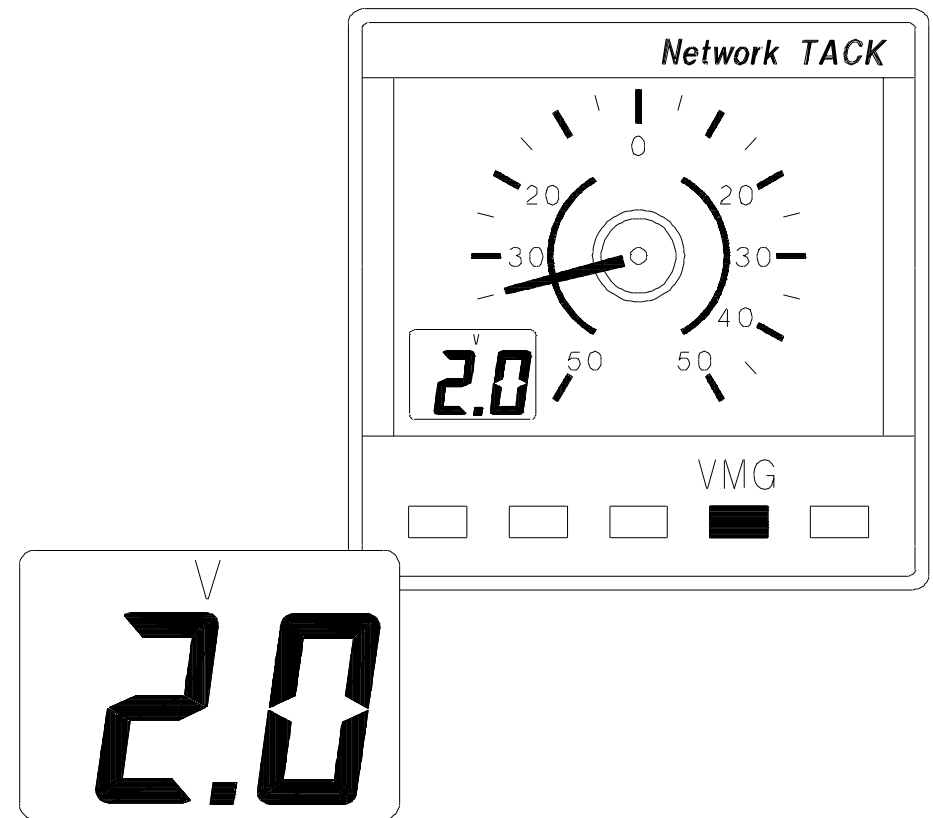
If boat speed data is not available the LCD digits will be blank and the **TRUE** legend will be displayed.



USING THE VMG KEY

Press the **VMG** key to display Velocity Made Good on the LCD. The LCD **V** legend will be displayed.

If boat speed data is not available the LCD digits will be blank and the **V** legend will be displayed.



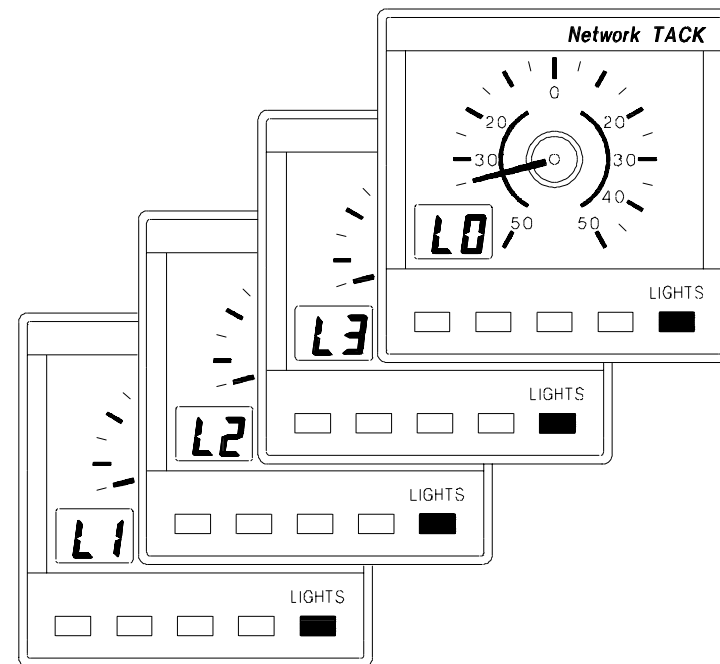
USING VMG FOR BETTER PERFORMANCE

VMG is an indication of how efficiently the yacht is sailing upwind or downwind. Maximising your VMG ensures you are following the fastest route upwind or downwind.

As a basic rule when heading directly for a mark the boat speed should be maximised, when tacking or gybing to the mark the VMG should be maximised.

USING THE LIGHTS KEY

The Network TACK Display unit has 3 levels of illumination and off, controlled by the **LIGHTS** key. The level selected is for the whole Network system.



- **L0** OFF
- **L3** High
- **L2** Medium
- **L1** Low

The **LIGHTS** key also changes the illumination level of the key legends, it always remains illuminated so even in complete darkness the key can be located.

INSTALLATION

The display heads are supplied with a clip-in mounting bracket which allows for easy installation, access from behind is not necessary to secure the unit in place. However to prevent theft and permanently fix the unit in position, locking studs and thumb nuts are supplied.

SITING

All Network Instruments are designed for mounting on or below deck. A mounting position should be selected where they are:

- Easy to read by the helmsman
- On a smooth and flat surface
- At least 100mm (4") from a compass
- Accessible from behind for fitting locking studs if required.

MOUNTING

Use the cutting template supplied to mark the centres of the holes for the self-tapping screw, the fixing stud holes and the mounting bracket.

- The template allows 4mm (5/32") between adjacent units for the suncover, increase this distance if required to maximum of 60mm (2 3/8") between units or 180mm (3 1/8") between centres. For greater distances between units extension cables are available.
- Use a 70mm (2 3/4") diameter hole-cutter for the mounting bracket hole.
- Use a 2.9mm for the self-tapping screw holes.
- Use a 5mm (3/32") drill for the locking stud holes.
- Secure the mounting bracket to the bulkhead with the self-tapping screws supplied
- Fit the rubber sealing gasket around the mounting bracket.
- Screw the locking studs into the back of the display head (if required).
- Carefully pass the cable tails through the mounting bracket hole, connect the cables to the main units.
- Clip the display head into the mounting bracket.
- Secure the instrument with the thumb nuts supplied.

SPECIFICATION

PHYSICAL PARAMETERS

Construction	High impact ABS plastic
Window	Acrylic
Display	Analogue dial and pointer Back-lit Liquid Crystal Display: Digits: 12mm 0.47"
Dimensions	110 x 110 x 25.4mm 4 x 4 x 1" Requires 65mm 2.6" depth behind bulkhead for display barrel
Weight	0.3 kg 0.66lbs

ENVIRONMENTAL

Operating Temp	-10 to +55°C @ 93%RH +14 to +131°F @ 93%RH
Storage Temp	-25 to +70°C @ 95%RH -13 to +158°F @ 93%RH
Humidity	Up to 95%RH
Sealing	Fully sealed front, suitable for bulkhead cockpit mounting. Vented barrel to prevent condensation.

ELECTRICAL

Power Supply	12V DC nominal (10 to 16V)
Operating Current	40mA typical, 100mA illuminated
Protection	Connect via external 5A fuse or circuit breaker.

CABLES AND CONNECTIONS

Connection to adjacent units is via cable tails fitted with either a plug or a socket. Extension cables are available from your dealer. The cable tails carry power and NMEA data between units.

ALARM

There is no internal audible alarm

NMEA OUTPUT SENTENCES

\$IIHDM	Heading
\$IIVHW	Speed and Heading
\$IIDBT	Depth
\$IIVWR	Apparent wind angle and speed
\$IIMTW	Sea temperature

ABBREVIATIONS AND DEFINITIONS

- AWA** Apparent Wind Angle - The angle between the boat's bow and the wind blowing across the deck (at mast height).
- AWS** Apparent Wind Speed - The wind speed across the deck (at mast height).
- TWA** True Wind Angle - The wind angle between the boat's heading and the true wind (at mast height). This is calculated from AWA, AWS and boat speed. This is the wind relative to the water, not the land.
- TWS** True Wind Speed - The wind speed over the water, independent of the boat's motion through it. Calculated from AWA, AWS and boat speed.
- VMG** Velocity Made Good - A measure of performance upwind or downwind calculated from TWA and boat speed.

THE WIND TRIANGLE

